Space Weather Forecast

Issued on Friday, 09 September 2022 at 01:20 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

Space Weather Forecast Headline: Chance of further Minor Geomagnetic Storms at first.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity was Low over the past 24 hours, with X-ray activity generally at background levels, but with occasional small Common class flares observed. The largest of these flares appeared to emanate from an as yet unnumbered sunspot group in the northeastern quadrant. This region is one of six sunspot regions on the solar disc at present. The most noteworthy of these remains AR3096 in the northeastern quadrant, which has shown very slight growth in spot number and area over the past 24 hours, but despite this it still remains relatively small and magnetically simple. The remaining regions on the disc all are small, magnetically simple and stable.
No Earth directed Coronal Mass Ejections (CME's) have been observed, and the previously mentioned CME from a filament eruption on the 7th is expected miss to Earth..

Solar Wind / Geomagnetic Activity: The solar wind was indicative of a very slowly waning enhanced solar wind speed. Wind speeds were predominantly Elevated, generally around 550 km/s at first and then ending the day closer to 510 km/s. The strength of the magnetic field strength was weak throughout, and the important north-south component weakly fluctuated. The net result of the above geomagnetic activity was Quiet to Active, but with a Minor Storm in the 08/06-09UTC interval according to the British Geological Survey.

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is expected to be largely low, with a slight chance of becoming moderate with isolated Moderate-class flares, most likely from AR3096 or the new, but unnumbered region, in the northeast quadrant. Later in the period a new region may rotate onto the visible disc.

Solar Wind / Geomagnetic Activity: No Earth-directed CMEs are currently in the forecast. Under the waning influence of CH20/+ the solar wind speed is expected to start at elevated levels, and then gradually decline through the period. The solar wind may not decrease to reach background levels by the end of the period, due to potential weak effects of a HSS from an unnumbered small and faint coronal hole in the northwest quadrant.
Geomagnetic activity will likely be Quiet to Active, with a chance of Minor Storm intervals today (9th Sep). This should slowly ease through the period to become largely Quiet to Unsettled by Day 4 (12th Sep).

Energetic Particles / Solar Radiation: No solar radiation storms are expected given the lack of significant regions and flares.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	Yes	50	20	5	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	5	5	5	5
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	2	2
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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